SLOVENSKI STANDARD
SIST EN 4115:2002

01-januar-2002

Aerospace series - Cushion, rubber for clamps - Dimensions, masses

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Luft- und Raumfahrt - Profilgummi für Schellen - Maße, Massen

Série aérospatiale - Profilé en élastomere pour colliers - Dimensions, masses

Ta slovenski standard je istoveten z: **EN 4115:2001**

ICS:

49.060	Letalska in vesoljska elektriļ na oprema in sistemi	Aerospace electric equipment and systems
49.080	Letalski in vesoljski hidravliļ ni sistemi in deli	Aerospace fluid systems and components

SIST EN 4115:2002 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 4115

September 2001

ICS 49.060; 49.080

English version

Aerospace series - Cushion, rubber for clamps - Dimensions, masses

This European Standard was approved by CEN on 1 January 2001.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Ref. No. EN 4115:2001 E

Foreword

This European Standard has been prepared by the European Association of Aerospace Manufacturers (AECMA).

After inquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of AECMA, prior to its presentation to CEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2002, and conflicting national standards shall be withdrawn at the latest by March 2002.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This standard specifies the required characteristics for rubber cushions used on clamps according to EN 3730, EN 4113, EN 4114.

For temperature range and environmental conditions see table 1.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incoporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 2000 Aerospace series – Quality assurance – EN aerospace products – Approval of the quality system of manufacturers

EN 2261 Aerospace series – Silicone rubber (VMQ) – Hardness 70 IRHD

EN 2566 Aerospace series – Fluorocarbon rubber (FPM) – Hardness 70 IRHD[1)]

EN 3730 Aerospace series – Clamps, saddle fixed and sliding version, in aluminium alloy with rubber cushioning – Dimensions, masses

EN 3826 Aerospace series – Fluorosilicone rubber (FVMQ) – Hardness 70 IRHD[2)]

EN 4113 Aerospace series – Clamps, loop ("P" type) in corrosion resisting steel, passivated, with rubber cushioning – Dimensions, masses

EN 4114 Aerospace series – Clamps, loop ("P" type) in aluminium alloy, with rubber cushioning – Dimensions, masses

1) Published as AECMA Prestandard at the date of publication of this standard
2) In preparation at the date of publication of this standard

3 Required characteristics

3.1 Materials

According to table 1

Table 1 – Materials

Material code	Elastomer	Colour	Hardness (IRHD)	Temperature range [a]	Cushion application notes
S	Silicone VMQ EN 2261	rust	70	– 55 °C to 200 °C (260 °C)	Environment of hot air, phosphate ester based fluids or other synthetic fluids and dielectrical use. Not for use with hydrocarbon based fluids.
F	Fluorosilicone FVMQ EN 3826	blue	70	– 55 °C to 180 °C (200 °C)	Environment of hot air, hydrocarbon based fluids. Not for use with phosphate ester based fluids except occasional splash.
V	Fluorocarbon FPM EN 2566	brown	70	– 20 °C to 200 °C (260 °C)	Fuels, oils and diester lubricants, synthetic fluids, hot air environment and dielectrical use. Not for use with phosphate ester based fluids except occasional splash.

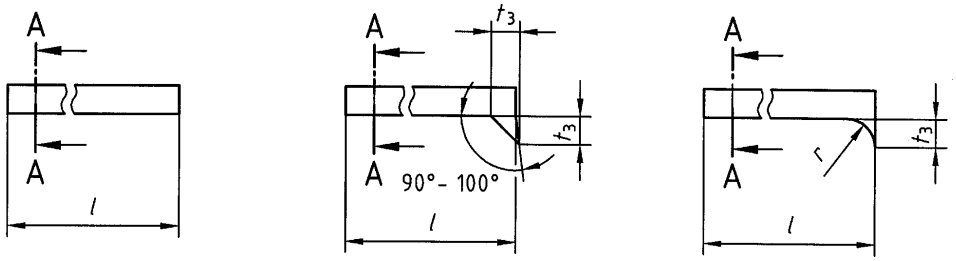
[a] Approximate temperature limits (in brackets) are for short excursions only

3.2 Configuration – Dimensions – Masses

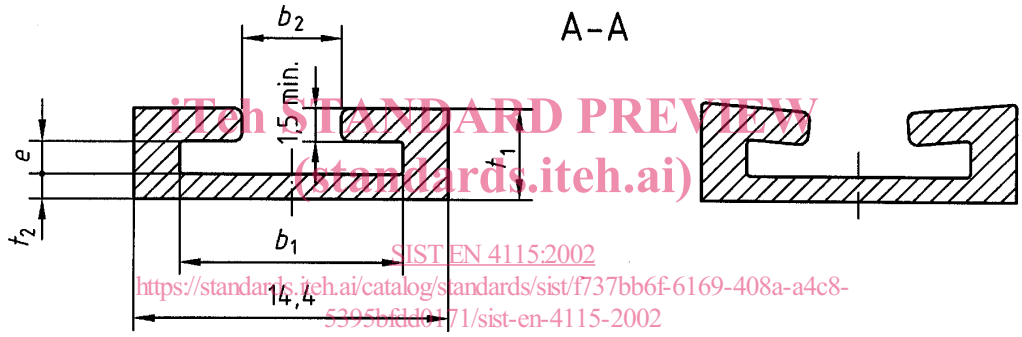
See figure 1 and table 2
Dimensions are in millimetres

Cushions without wedge

Cushions with wedge (only moulded)
possible forms (at manufacturer's option)

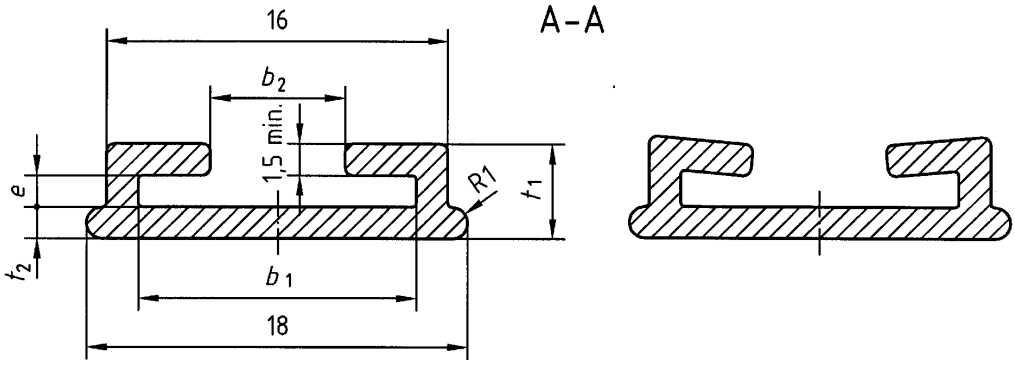


Length *l* results from the dimensions given in the corresponding dimensional standards of clamps.



Cushion profile 1

Valid deviation of form



Cushion profile 2

Valid deviation of form

Figure 1 – Configuration

Table 2 – Dimensions

Cushion profile type	Metal band profile [a]	Size code without wedge	Size code with wedge	b_1	b_2 max.	Diameter code [a]	e min.	r	t_1 max.	t_2 ±0,2	t_3	Q mm^2
1	9,5×0,8	1N	1K	10,0	4,4	03 to < 13	1,0	2,8	4,2	1,2	2,8	42
2	12,7×0,8	2N	2K	13,2	6,5	03 to < 18						52
	12,7×0,8		2L			18 to < 28		5,0			5,0	
	12,7×1,0	3N	3L			13 to < 28	1,2		4,5			55
	12,7×0,8	4N	4L			28 to < 48	1,0			1,5		61
	12,7×1,0	5N	5L			48 to 86	1,2		4,7			62
	12,7×1,5	6N	6L			28 to 86	1,8		5,2			63

[a] See the relevant clamp standard

The corresponding unit mass of application of cushion is given by the formula:

$$M = 0{,}001 \cdot \rho \cdot Q \cdot l + m$$

where:

m Wedge mass (negligible, about 0,1 g to 0,3 g)

l Required cushion length in millimetres

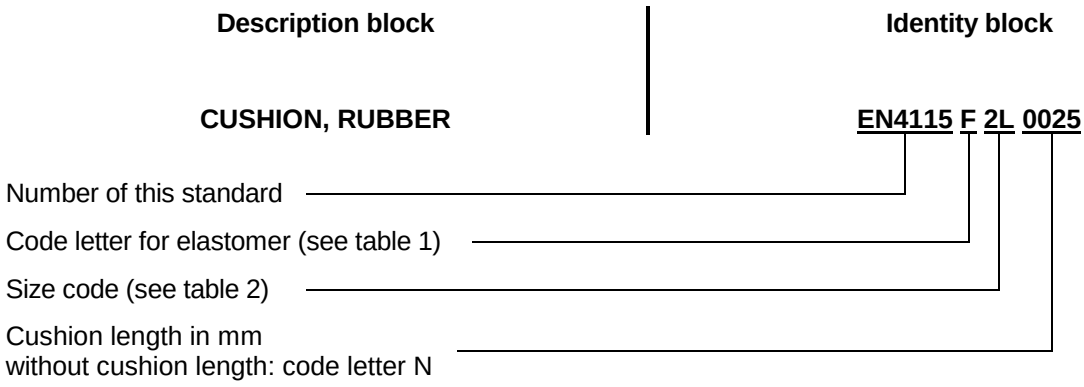
Q Cushion section in square millimetres (see table 2)

ρ Density in gramme per cubic centimetres

M Cushion unit mass in grammes

4 Designation

EXAMPLE:



NOTE: If necessary, the code I9005 shall be placed between the description block and the identity block.

5 Marking

See the relevant clamp standard